

Advisory Council Recommendations for the Energy Transition of Fisheries and Aquaculture Roadmap

The European fishing and aquaculture sector faces a dual necessity: transitioning to sustainable, low-carbon operations while maintaining competitiveness in a global market. The Advisory Councils (hereinafter, 'ACs') recommendations set a detailed agenda across multiple dimensions—strategic planning, financial investment, skill development, and competitiveness—to facilitate this transformation by 2050. The main recommendations received from the ACs so far have been compiled and summarised in this document.

1. Recommendations

1.1. Strategic Vision and Development

Integrated Strategic Planning:

Many ACs underscore the necessity of a well-defined strategic vision that merges the goal of decarbonization with other related sectors such as ports and logistics. This holistic approach not only helps in achieving sector-specific goals but also ensures coherent progress across the broader maritime industry. Currently, the clear target of reaching net zero by 2050 in the European Union exists, but in the fisheries and aquaculture sector, it lacks detailed roadmaps essential for tracking and measuring progress, which many ACs note as an area requiring immediate attention.

Sectoral Synergies:

By promoting integrated action across sectors, many AC recommendations seek to create synergies that enhance the efficiency and effectiveness of decarbonization efforts. Such collaboration is expected to yield optimized logistics, reduced costs, and more strategic resource management—key factors in achieving competitive and sustainable maritime operations.

Feedback from the BSAC

As a general consideration, any energy transition effort must be based on a viable outlook for fishery businesses to plan investments, adhere to future legislation and improve ecosystem health. The Baltic is particularly vulnerable to environmental changes contributing to a dramatic decline in some commercial fish stocks. This situation requires a special approach,

also in terms of energy transition, as the majority of vessels fishing in the Baltic are small-scale vessels being restricted to Baltic fish stocks (Baltic-locked) and spread over a multitude of small harbours with limited infrastructure. A modernization of the fleet can give fishers the chance to diversify their income based on local opportunities to fish new species and using new gear or pursue non-fishing activities like guided tours and crew transport. This may enable economic stability and ensure return of investments. Fluctuations in the fishing opportunities alone cannot compensate the investments made in modernisation. Thus, special regard must be given to Baltic-locked fisheries in the Baltic. Together with the small-scale fleet, the larger fleet segments also face a disadvantage in the Baltic compared to other basins: being at the end of the maritime transport chain. Integrated Strategic Planning and Sectoral Synergies must ensure that “green corridors” and availability of alternative fuels is developed in the entire Baltic region and especially in small ports to create a level playing field in terms of infrastructure.

1.2. Financial Investments and Funding Mechanisms

Comprehensive Financial Needs:

An essential component of this transition is securing adequate financial investment. Most ACs flag that the required level of funding exceeds the capacity of the EMFAF, requiring the exploration of alternative funding sources. Public-private partnerships, grants, and innovative investment incentives are among the suggested mechanisms to muster the financial commitment needed.

Feedback from the BSAC:

Funding from EMFAF: *While some limitations on EMFAF use for the fleet transition are not contested, the BSAC points at important discrepancies in the operational programmes of various Member States. Some Member States do not finance improvements in energy efficiency of a vessel by e.g., replacing an engine or using alternative propulsion methods which in many cases seems unavoidable, especially to make an old vessel, regardless of size, more energy efficient. Member States also need to ensure that finance mechanisms are developed for long-term investment, independent of economic or ecological conditions. This also applies to infrastructure funding mechanisms. It should be taken into account that there is a different capacity for investments in different Member States as well as differences in regional development. BSAC notes that under the current regulation, fisheries only have access to funding if the targeted stocks are above $MSY B_{trigger}$. Solutions for how the coastal Baltic fleet can accomplish the energy transition in a just manner should therefore be sought. Environmental conditions in the Baltic have contributed to biomass depletion and we must avoid a situation where the coastal fleet in the Baltic is not eligible for investment from energy transition funds.*

The BSAC recommends that:

- *Member States invest in the development of infrastructure in ports and develop green energy logistics to support the transition in the long-run.*
- *Member States align their operational programmes to ensure that the energy transition of the Baltic fleets is supported by appropriate and continued access to funding.*
- *The Commission coordinate work on access to funding opportunities foreseen in the Action Plan and the Communication on Energy Transition to ensure that such access will become coherent across Member States.*
- *Member States and the Commission create investment schemes for green technology and transition.*
- *Member States and the Commission shall account for the entire life cycle of fisheries products and value-chain actors that also have to make efforts to reduce their energy consumption. In order to achieve this, the processing sector may need to be able to access financial support for low-carbon marine proteins. For example, Members States should grant the processing sector support for industrial decarbonisation through the Clean Industrial Deal State Aid Framework adopted in June 2025. **Indeed, the production of fishmeal and fish oil is an important, and energy intensive processing industry around the Baltic Sea.** While processing plants are already involved in the energy renovation process, they are faced with a lack of financial support to go further.*
- *Member States and the Commission involve all stakeholders (policymakers, engine manufacturers, fisheries representatives, NGOs etc.) in order to ensure the legitimacy and the acceptability of the energy transition measures. The objectives in terms of energy transition must be realistic, taking into account the level of knowledge and scientific research, the cost of transition and the funding available. SWOT analyses, as well as environment impact assessments of the different technological solutions should be carried out.*

Partnership with Financial Institutions:

Collaboration with financial institutions, notably the European Investment Bank Group, is pivotal. These partnerships are envisioned to align investment priorities and ensure available funds target the most impactful technologies and practices. Such alignment could provide the certainty needed to encourage private sector investments and innovation.

Legislative Adjustments:

A critical recommendation involves revising legislation, particularly Regulation 1380/2013 (Common Fisheries Policy), to ease the introduction of new, albeit bulkier, energy-efficient vessels, that currently face challenged being introduced due to capacity ceiling limitations.

Regulatory adjustments would facilitate seamless incorporation of advanced propulsion systems such as hybrid solutions and alternative fuels like hydrogen and biofuels.

1.3. Technological Innovation and Implementation

Immediate Efficiency Gains:

In the short term, enhancing the energy efficiency of existing fleets is prioritized. The adoption of advanced fishing gears, solar and wind auxiliary propulsions, and modern vessel designs are suggested as immediate measures to reduce emissions while awaiting more affordable fuel alternatives.

Long-term Alternative Fuels:

A phased approach to adopting alternative fuels is emphasized, with thorough life cycle assessments and comparative studies recommended. Evaluating greenhouse gas emissions and ecological footprints ensures that chosen fuel solutions are both environmentally and economically viable.

Comprehensive Analysis for Technology Adoption:

Before adopting any new technology, the ACs advise conducting exhaustive SWOT and comparative analyses. These assessments should factor in technological maturity, costs, operational challenges, and sector-specific applicability to make informed decisions on suitable technologies.

Feedback from the BSAC:

For a holistic analysis of technology adoption and emission reduction potential, the entire supply and value chain should be included, from well-to-wake and from sea-to-plate. In that form already efficient sectors and previous emission reductions can be highlighted as well as most cost-effective reduction potential identified.

A transition towards alternative energy sources presents a range of complex challenges, both at sea and on land. These challenges are not only technical but also regulatory in nature and include important safety considerations.

At sea, the primary limitation lies in adapting new technologies to the varying sizes of fishing vessels and the diversity of fishing techniques. Alternative fuels generally require more onboard space, and many of them necessitate specially designed tanks with advanced insulation to meet temperature and safety requirements. This further reduces the available space on board. For smaller vessels, maintaining sufficient buoyancy will be a significant

challenge. Electrification, on the other hand, may not demand additional space but introduces its own difficulties, particularly concerning vessel weight. The BSAC notes that while capacity ceilings may only be reached in the long-term in case all fleet segments have been converted to using alternative fuels, individual replacement of vessels with larger ones to accommodate alternative fuels and engines may be hindered by capacity regulations. This affects all fleet segments. The BSAC recommends that the Commission investigates how current capacity rules could restrict individual vessel replacements and how alternative fuel space could be incorporated into capacity rules without endangering the purpose of capacity limitations.

On land, the issues to overcome include logistics (ports lack charging stations, LNG storage, etc.), maintenance and crew training. The large majority of catches are part of carbon intensive long value chains where the majority of emissions could take place on land. Hence, a great reduction potential is seen here. The BSAC notes that a holistic approach is necessary and the entire value chain should be accounted for, linking fisheries and the processing industry in terms of decarbonization, and emphasizing already low-emission sectors and decarbonization efforts.

1.4.Skills Development

Training and Knowledge Enhancement:

Training is deemed critical for equipping the workforce with skills necessary for operating new technologies and adhering to sustainable practices. The recommendations suggest utilizing EMFAF resources to develop training programs targeting high-efficiency propulsion systems and alternative fuels usage, considering both environmental impacts and technological nuances.

Generational Renewal Challenges:

There is acknowledgment by most ACs of the generational skills gap, with a strategic focus on attracting young professionals and aligning training with new technological demands. According to most ACs, developing comprehensive educational programs in maritime academies and technical institutes that prioritize decarbonization and energy transition is key to solve the generational renewal challenge.

Adaptability and Safety:

Workforce adaptability to the technological transition should be scrutinized, ensuring that new skills include safety protocols linked to energy-efficient operations and propulsion systems. Plans for structured and continuous training are proposed by the ACs as essential for smooth adaptation to the evolving technological landscape.

1.5.Competitiveness

Maintaining Market Competition:

Ensuring that the transition to sustainable practices does not erode market competitiveness is a fundamental concern to most ACs. Potential risks, such as increased reliance on imports and higher product costs, are acknowledged, underscoring the need for strategic interventions to mitigate these impacts.

Creating a Supportive Business Environment:

Many ACs call for nurturing a business climate conducive to innovation and risk-taking, essential for fostering investment and maintaining competitiveness. Strategic engagement of financial backers and enhancing the EU seafood sector's visibility are cited as critical strategies.

Sustainability and Market Standing:

Promoting seafood as part of a sustainable, climate-neutral food system aligns with broader market goals. The framework emphasizes reducing potential negative externalities, such as production declines due to sustainability constraints, by integrating sustainability with competitive strategies.

Collaboration with Related Sectors:

Active involvement of ports and logistics is seen as essential, facilitating the synchronization of infrastructure development for new technologies. Such collaboration is pivotal in reducing capital requirements while bolstering both sustainability and economic viability.

Regulatory Harmonization:

Re-evaluation of regulatory constraints is recommended to unlock investment opportunities and foster innovative practices. Harmonizing EU regulations with sustainable fisheries exploitation objectives could provide clear guidelines and promote competitive, environmentally aligned practices.